UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/786,244	02/24/2004	Ludger Mimberg	NVID-P001166	2724

7590 04/04/2006

WAGNER, MURABITO & HAO LLP
Third Floor
Two North Market Street
San Jose, CA 95113

EXAMINER	
SMITH, TYRONE W	

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 04/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/786,244	MIMBERG, LUDGER	
	Examiner	Art Unit	
	Tyrone W. Smith	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,5-9,12 and 17-24* is/are rejected.

7)☒ Claim(s) *3,4,10,11,13-16,25 and 26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 6, 20 and 21 objected to because of the following informalities: In claims 6, 20 and 21 where the capacitor is one case having a microfarad ranges or 0.1-50 and an ESR ranges of 0.1-50. Would the microfarad and ESR be same? Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 5, 8, 9, 12, 17, 23, and 24 rejected under 35 U.S.C. 102(b) as being anticipated by Witt (5742142).

Regarding Claims 1 and 23. Witt discloses a low radiated emission motor speed control with PWM regulation which includes a pulse width modulation generator (Figure 3 item 22) for generating a pulse width modulation signal; and a drive stage circuit (Figure 3 items 26, 28, 30 and 32) coupled to the pulse width modulation generator and for switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage level of linear voltage is a function of the pulse width modulation signal. Refer to the abstract; column 2 lines 56-67, column 3 lines 1-40 and column 4 lines 20-38. It should be noted that in the Witt is related to blower motor for heat and ventilation (column 1 lines 10-22) and provides that same structure

for switching PWM to linear voltage (sinusoidal ripple voltage) where Witt teaches away from using linear voltage amplifiers.

Regarding Claim 2. Witt discloses an operating speed of the fan (motor) is a function of the voltage level of the linear voltage (column 2 lines 2-6).

Regarding Claim 5. Witt discloses a first transistor (Figure 3 item 26) having a gate for receiving said pulse width modulation signal and a source coupled to a first potential; a current shunting element (Figure 3 item 32) having a first terminal coupled to a drain of the first transistor and a second terminal coupled to a second potential, a capacitor (Figure 3 item 30) having a first terminal coupled to the second terminal of the current shunting element, and an inductor (Figure 3 item 28) having a first terminal coupled to a second terminal of the capacitor and a second terminal coupled to the first terminal of the current shunting element and to the drain of the first transistor.

Regarding Claim 8. Witt discloses a low radiated emission motor speed control with PWM regulation which includes a pulse width modulation generator (Figure 3 item 22) for generating a pulse width modulation signal; and a drive stage circuit (Figure 3 items 26, 28, 30 and 32) coupled to the pulse width modulation generator and for switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage level of linear voltage is a function of the pulse width modulation signal. Refer to the abstract; column 2 lines 56-67, column 3 lines 1-40 and column 4 lines 20-38. Witt discloses a first transistor (Figure 3 item 26) having a gate for receiving said pulse width modulation signal and a source coupled to a first potential; a current shunting element (Figure 3 item 32) having a first terminal coupled to a drain of the first transistor and a second terminal coupled to a second potential, a capacitor (Figure 3 item 30) having a first terminal coupled to the second terminal of the current shunting element, and an inductor (Figure 3 item 28) having a first terminal coupled to a second terminal of the

capacitor and a second terminal coupled to the first terminal of the current shunting element and to the drain of the first transistor.

Regarding Claim 9. Witt discloses current shunting element comprises a diode having an anode coupled to the drain of said first transistor and to the second terminal of the inductor, and a cathode coupled to said second potential and to said first terminal of said capacitor. Refer to Figure 3.

Regarding Claims 12 and 17. Witt discloses a fan (motor) coupled across the capacitor (Figure 3 item 30) where the linear voltage for driving the fan is generated across the capacitor. Refer to the abstract; column 2 lines 56-67, column 3 lines 1-40 and column 4 lines 20-38.

Regarding Claim 24. Witt discloses an operating speed of the fan (motor) is a function of the voltage level of the linear voltage (column 2 lines 2-6).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 3, 4, 10, 11, 13-16, 25 and 26 rejected under 35 U.S.C. 103(a) as being unpatentable over Witt (5742142) in view of Frankel et al (6801004).

Regarding Claims 3, 4, 11, 13-16, 25 and 26. Witt discloses a low radiated emission motor speed control with PWM regulation which includes a pulse width modulation generator (Figure 3 item 22) for generating a pulse width modulation signal; and a drive stage circuit (Figure 3 items 26, 28, 30 and 32) coupled to the pulse width modulation generator and for switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage

level of linear voltage is a function of the pulse width modulation signal. Refer to the abstract; column 2 lines 56-67, column 3 lines 1-40 and column 4 lines 20-38. It should be noted that in the Witt is related to blower motor for heat and ventilation (column 1 lines 10-22) and provides that same structure for switching PWM to linear voltage (sinusoidal ripple voltage) where Witt teaches away from using linear voltage amplifiers. However, Witt does not disclose a thermal sensor coupled to the PWM generator or a speed sensor coupled to the fan motor.

Frankel discloses a system and method of controlling cooling fan speeds that includes a thermal sensor (Figure 1 item 116) coupled to the PWM generator (Figure 1 item 120) and a speed sensor (Figure 1 item 116) coupled to the fan motor. Further, the fan motor is controlled based on the signals provided from the sensors.

It would have been obvious to one of ordinary skill in the art at the time of invention to use Witt's invention with Frankel's invention. The advantage of combining the two would provide intelligent system with adjustments to the fan motor/cooling system based on the speed of the motor and thermal temperature of the system.

In reference to claim 10, Frankel et al describes 2 transistors 372/374 connected in series and connected to inductor 380, SEE Figure 3B.

6. Claims 6, 7, and 18-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Witt (5742142).

Regarding Claims 6 and 18. Witt discloses a low radiated emission motor speed control with PWM regulation which includes a pulse width modulation generator (Figure 3 item 22) for generating a pulse width modulation signal; and a drive stage circuit (Figure 3 items 26, 28, 30 and 32) coupled to the pulse width modulation generator and for switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage level of linear voltage is a function of the pulse width modulation signal. Refer to the abstract; column 2 lines 56-67, column 3 lines 1-40 and column 4 lines 20-38. It should be noted that in the Witt is related to

blower motor for heat and ventilation (column 1 lines 10-22) and provides that same structure for switching PWM to linear voltage (sinusoidal ripple voltage) where Witt teaches away from using linear voltage amplifiers. However, Witt does not disclose an operating frequency of the pulse width modulation is approximately within the range of 200-100Khz.

In Chapter 2100, 2131.04 section 3. "Anticipation under § 102 can be found only when the reference discloses exactly what is claimed and that where there are differences between the reference disclosure and the claim, the rejection must be based on § 103 which takes differences into account." Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (Claims to titanium (Ti) alloy with 0.8% nickel (Ni) and 0.3% molybdenum (Mo) were not anticipated by, although they were held obvious over, a graph in a Russian article on Ti-Mo-Ni alloys in which the graph contained an actual data point corresponding to a Ti alloy containing 0.25% Mo and 0.75% Ni.). Witt discloses an operating PWM frequency range of 40-100Khz, which can be increased (column 3 lines 4-16). The ranges of Witt are close to the range of the current invention, which can adjust.

It would have been obvious to one of ordinary skill in the art at the time of invention to use or increase the ranges of Witt is relation to the current invention. The advantage of combining the two would provide a system that minimizes the size and structure of the inductor and capacitor and thereby minimizing the ripple voltage going into the motor.

Regarding Claims 6, 7, and 19-22. Witt discloses a low radiated emission motor speed control with PWM regulation which includes a pulse width modulation generator (Figure 3 item 22) for generating a pulse width modulation signal; and a drive stage circuit (Figure 3 items 26, 28, 30 and 32) coupled to the pulse width modulation generator and for switch mode converting a supply voltage into a linear voltage for driving a fan, wherein a voltage level of linear voltage is a function of the pulse width modulation signal. Refer to the abstract; column 2 lines 56-67,

column 3 lines 1-40 and column 4 lines 20-38. It should be noted that in the Witt is related to blower motor for heat and ventilation (column 1 lines 10-22) and provides that same structure for switching PWM to linear voltage (sinusoidal ripple voltage) where Witt teaches away from using linear voltage amplifiers. However, Witt does not disclose the ranges as described in claims 6, 7, and 19-22.

Refer to Chapter 2100, 2131.03 section 1. "When, as by a recitation of ranges or otherwise, a claim covers several compositions, the claim is anticipated' if one of them is in the prior art." Titanium Metals Corp. v. Banner, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985) (citing In re Petering, 301 F.2d 676, 682, 133 USPQ 275, 280 (CCPA 1962)) (emphasis in original) (Claims to titanium (Ti) alloy with 0.6-0.9% nickel (Ni) and 0.2-0.4% molybdenum (Mo) were held anticipated by a graph in a Russian article on Ti-Mo-Ni alloys because the graph contained an actual data point corresponding to a Ti alloy containing 0.25% Mo and 0.75% Ni and this composition was within the claimed range of compositions.). Witt discloses a inductor with 33 micro (H), capacitor with 47 microfarads, and a difference between a first and second potential is about 7 volts. Refer to column 3 lines 18-33.

It would have been obvious to one of ordinary skill in the art at the time of invention to use or increase the ranges of Witt is relation to the current invention. The advantage of combining the two would provide a system that minimizes the size and structure of the inductor and capacitor and thereby minimizing the ripple voltage going into the motor.

Response to Arguments

7. Applicant's arguments with respect to claims 1-26 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that the prior arts of record used in rejection of the case do not disclose a switch mode for converting the supply voltage (PWM) into linear voltage (sinusoidal ripple). The prior arts of record use a low pass filter, which would be different from the switch mode of the present invention. Examiner agrees with this assessment.

Examiner rejection of the current claims is based on the reference of Will, as described above, that discloses the switch mode of the current invention (Figure 3).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tyrone W. Smith whose telephone number is 571-272-2075. The examiner can normally be reached on weekdays from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley, can be reached on 571-272-2800 ext. 33. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tyrone Smith
Patent Examiner

Art Unit 2837

RINA DUDA
PRIMARY EXAMINER